Porcupine-Buggy Watershed Monitoring and Standards and Guidelines Report

Glasgow Field Station
2007

Riparian

Wildlife

Livestock Grazing

Recreation

Range Improvements

Cultural

Introduction

The Porcupine-Buggy Watershed consists of 145,762 acres (99,168 acres of BLM – administered public lands and 46,594 acres of private and state lands) in north Valley County, Montana. The BLM manages approximately 68% of the surface acres in this watershed. The watershed is comprised of 55 livestock grazing allotments with 65 permittees holding term permits. There are currently nine implemented Allotment Management Plans (AMP) in this watershed that cover about 55% of the federal acreage. Over 12 % of the federal land in this watershed is in allotments that are managed under custodial care. The remaining allotments are small and were not identified as potential AMPs in the land use plan (see Porcupine-Buggy Complex Watershed Report for maps and details).

The watershed level management program being used in the Glasgow Field Station is a result of decisions made in the Judith-Valley-Phillips Resource Management Plan (JVP-RMP) dated September 1994. Initial assessments of the riparian and upland areas of the Porcupine-Buggy Complex Watershed were conducted during the grazing seasons of 2000 and 2001. The Porcupine-Buggy Complex Watershed Report that documented those findings was completed in June of 2002.

This Porcupine-Buggy Monitoring and Standards and Guidelines Report updates the riparian condition assessment and the progress made in those allotments that were not meeting the rangeland standards. Some of the allotments had an uplands assessment completed using the Technical Reference 1734-6 Interpreting Indicators of Rangeland Health, but the extremely dry conditions during the later portion of the summer prevented any definite conclusions from being made using this method.

History

The Porcupine-Buggy Complex Watershed Report (2002) determined that the uplands were meeting the upland standard on a watershed scale and were in "proper functioning condition." The upland standard is not the same as the objectives given in the JVP RMP (ie: 80% good or excellent ecological condition). The standards provide a baseline that every allotment is measured against, but the objectives in the RMP are different and may be higher. The watershed was originally mapped for ecological status in 1978 & 1979 and only 62 % was found to be in late seral or potential natural community ecological condition. The mapping was updated in 2000, and showed little change from the previous mapping efforts. No additional ecological status data was gathered during 2006, due to the drought conditions.

The riparian condition and recommendations as described in the Porcupine-Buggy Complex Watershed Report are shown in Table 1. The riparian studies in the watershed were all completed in 2006. The livestock grazing recommendations for allotments #4059 and #4303 were fully implemented during the initial 5-year implementation period. Chemical and biological weed control has continued at the same level to control leafy spurge.

Climatic data gathered at the Glasgow weather station showed above average growing season precipitation (.7 inches) and slightly above average temperatures (.1 degrees) for the evaluation period of 1999 to 2005. The 15-year averages were close to the long-term average for both precipitation (+.1 inches) and temperature (+.6 degrees). The 2006 growing year was very dry with below average precipitation and above average temperatures. The final data is not yet available for 2006.

The Glasgow Field Station's monitoring policy states that areas not meeting rangeland standards would be monitored every year. Sites that were meeting standards would be monitored every three to five years. All sites can be monitored more frequently by the BLM or the permittees if desired or needed.

Table 1. Recommendations and Management Actions

Allotment # & Name	**Are Healthy Rangelands Standards Being Met?**	**Narrative Explanation and Recommended Actions**	**Management Actions Taken Since 2001 and the Known Results**
4059 Wards Dam	No	A riparian fence was built (2001) after field evaluation to improve riparian. Maintain current grazing system. Maintain and develop waterfowl habitat.	The riparian improved to PFC after fence was built and grazing was limited to early spring or late fall use only. Limit grazing in Ward's Dam exclosure every 3 -5 years to improve waterfowl habitat. The Ward's Dam AMP was revised to reflect the grazing changes.
4061 Lower West Porcupine	Yes	No changes recommended. *(On disposal list, some already exchanged)*	
4069 Lower Unger Coulee	No	Not meeting Standards #1 and #5 due to crested wheatgrass and high utilization levels. Maintain current grazing system. Monitor utilization on crested wheatgrass to be <60%.	Changed season of use, deferred early use on crested wheatgrass pastures. Still need to develop dependable water source on private land.

4078 Upper Lime Creek	No	Riparian condition is not livestock caused. Maintain current grazing system. Conduct a riparian rehabilitation study on Lime Creek. Continue efforts to control leafy spurge.	Constructed dirt berms to re-route water into main channel as part of the riparian rehabilitation project. Built new reservoirs and pits for livestock and wildlife. Continued to monitor and ground spray leafy spurge on Lime Creek.
4079 South Lime Creek	Yes	Maintain and/or develop waterfowl habitat. Monitor sage grouse numbers and habitat. Maintain leafy spurge control.	Constructed two pits for livestock and waterfowl use. Limit ground disturbances and maintain the current stands of silver sagebrush for sage grouse habitat. Continued to monitor and ground spray leafy spurge on Lime Creek.
4081	Yes	No changes recommended.	
4082 Black Coulee	Yes	Remove saline seep fence. Maintain grassland habitat for curlews. Maintain leafy spurge control.	Saline seep fence exclosure was upgraded and will continue to be maintained to control seep.
4084	Yes	No changes recommended.	
4087 Lower Lime Creek	Yes	No changes recommended.	
4088 Ellsworth Coulee	Yes	No changes recommended.	

4089 Alkali Coulee	Yes	Develop an Allotment Management Plan (AMP) to meet objectives of the JVP.	No AMP developed. Needs stock water but sites are limited.
4090 Lower Alkali Creek	Yes	Maintain and/or develop sage grouse habitat.	Limit ground disturbances and maintain the current stands of silver sagebrush for sage grouse habitat.
4091 Lower Bear Creek	Yes	*Areas where crested wheatgrass grows do not meet biodiversity on a site basis. Maintain habitat for grouse.	Limit ground disturbances and maintain the current stands of silver sagebrush for sage grouse habitat.
4092 Upper Unger Coulee	No	Maintain current grazing system. Monitor chisel plow pasture and the effects on grassland birds. Monitor riparian area. The Unger Coulee stream segment has low potential for improvement and is near PFC (rated 77, 80, 75 in the three years monitored). Therefore, no grazing management change is recommended now.	Riparian along Unger Coulee has been monitored and shows little to no change. Uplands show static to downward trend with possible forage production problems on the bench tops.
4095	Yes	No changes recommended	
4096	Yes	No changes recommended.	
4098	Yes	No changes recommended.	
4200 Lower Porcupine	Yes	Monitor for leafy spurge.	Small patches of spurge have been found and treated with herbicide.
4201	Yes	No changes recommended.	
4202 Lenz Coulee	Yes	Area should be considered for recreation purposes;	No action.

4301 Upper Buggy Creek	Yes	Maintain current grazing system. Establish more photo and study points on Canyon Creek.	Determined a downward trend on Buggy Creek riparian. Recommend change in grazing system with a riparian fence.
4303 Buggy Creek	No	Revise AMP to stipulate use within new riparian pasture (fence constructed in 2001 for segment of Canyon Creek in FAR status. Maintain and/or develop waterfowl habitat.	Riparian zones improved to PFC after 2 riparian fences were constructed on West Fork Canyon and Canyon Creeks. Constructed new pits for livestock and waterfowl/wildlife use. The Buggy Creek AMP was revised to reflect grazing changes.
4304 Porcupine Creek	Yes	No changes recommended.	
4307 Lower Spring Creek	Yes	No changes recommended.	
4308 Spring Coulee	Yes	Develop an Allotment Management Plan (AMP) to meet objectives of the JVP.	No AMP developed. Used with Buggy Creek allotment (#4303). Continue early spring or late fall use to maintain the riparian objectives.
4309 Westfork	Yes	Develop an Allotment Management Plan (AMP) to meet objectives of the JVP. Implement a cross fence to better utilize uplands. Maintain and /or develop sage grouse habitat.	Constructed a cross fence separating Spring Creek from the uplands. Grazing stipulations were added to term permit to limit grazing to early-spring or late fall use on Spring Creek. Limit ground disturbances and maintain the current stands of silver sagebrush for sage grouse habitat.
4310 North Westfork	Yes	No changes recommended.	

14100	Yes	*Areas where crested wheatgrass grows do not meet biodiversity on a site basis. No changes recommended.	
14101 Antelope Spring	Yes	No changes recommended.	
14102 Dry Coulee	Yes	Develop an AMP to meet objectives of the JVP.	No AMP developed.
14103	Yes	*Areas where crested wheatgrass grows do not meet biodiversity on a site basis. No changes recommended.	
14104	Yes	No changes recommended.	
14105	Yes	Consider chisel plow in viable areas.	
14106 Upper Richardson	Yes	Develop waterfowl and stock ponds.	Constructed 2 additional pits for livestock water and waterfowl.
14107	Yes	No changes recommended.	
14108 Upper Martin Coulee	No	*Areas where crested wheatgrass grows do not meet biodiversity on a site basis. Consider chisel plowing in viable areas and develop more stock ponds.	Limited acreage of federal land in this allotment for chiseling or water development.
14109 Cherry Creek	Yes	Maintain current grazing system. Develop a chisel plow management plan that is beneficial to wildlife and the native grasses.	Archeological clearance is completed. Waiting on favorable moisture conditions to begin the chisel project. This project needs to be completed if permittee wants to run at preference.
14110 Upper School Section	Yes	Move allotment boundary fence and place on the PD line.	Leave boundary fence in place as long as no feeding of hay occurs on federal land.

14111 Foss Coulee	Yes	Additional water is needed in north pasture. Maintain grassland habitat for various bird species.	Soils are not conducive to reservoir or pit construction.
14112 Upper Spring Creek	Yes	Maintain current grazing system. Develop a chisel plow plan that would benefit grassland birds. Improve utilization on crested wheatgrass.	If permittee would like to increase federal AUMs in allotment an archaeology clearance and chisel plan project should be carried out.
14113 Spring Coulee	Yes	*Areas where crested wheatgrass grows do not meet biodiversity on a site basis. Implement a cross fence to get better livestock distribution and utilization. Develop more stock ponds.	Allotment is used in conjunction with Allotment #14112. Built one additional pit in Spring Coulee allotment (#4113).
14114 Lower Spring Coulee	Yes	No changes recommended.	
14115	Yes	No changes recommended.	
14116 Hawk Coulee	Yes	Evaluate current grazing system. Monitor sage grouse lek.	Monitoring shows a need for a modification of the current grazing system and a fencing change. Changes proposed for 2007.
14117 Chapman Coulee	Yes	Maintain early spring and late fall season of use.	
14118 Mooney Coulee	Yes	No changes recommended.	
14119 Lower Mooney Coulee	Yes	No changes recommended.	
14121 Lower	Yes	*Areas where crested wheatgrass grows do not	No knapweed found.

Cherry Creek		meet biodiversity on a site basis. Monitor for knapweed.	Monitoring will continue.
14122 Lower Foss Coulee	Yes	No changes recommended.	
14124 East Cherry Creek	Yes	Implement fence below reservoir for habitat protection. Develop stock ponds. Monitor for knapweed.	No knapweed found. Continue to monitor. No new reservoirs or fence needed after evaluations.
14125 Lower Porcupine Cr.	Yes	No changes recommended.	Treated small patch of leafy spurge with chemical
14127	Yes	No changes recommended.	
14128 Middle Foss Coulee	No	*Areas where crested wheatgrass grows do not meet biodiversity on a site basis. Manage crested wheatgrass; encourage more utilization.	Rebuilt east allotment boundary fence. No action on Crested wheatgrass.
14129 Cherry Creek Forks	No	*Areas where crested wheatgrass grows do not meet biodiversity on a site basis. Monitor for knapweed.	No knapweed found. Continue to monitor.

* The issue of scale must be kept in mind when evaluating standards. It is recognized that isolated sites within the landscape may not be meeting the standards. The upland standard requires a diversity of native plant species and crested wheatgrass does not meet the criteria however; on a watershed basis crested wheatgrass only makes up about 5% of the BLM acres and provides biodiversity at that scale.

Upland Status

Upland Trend Monitoring

The Porcupine-Buggy Watershed Report used a limited set of upland monitoring studies to determine whether the watershed was meeting the upland standards. It was decided in 2006, to do a more thorough inventory of existing upland trend studies and reread the studies that had shown some vegetative change or potential to change. Most of the upland studies had not been

read and photographed since the early 1990s. In 2006, a sampling of 3x3 trend studies were read and photographed on the nine AMP allotments. A majority of these sites were on clubmoss dominated sites which respond very slowly to management.

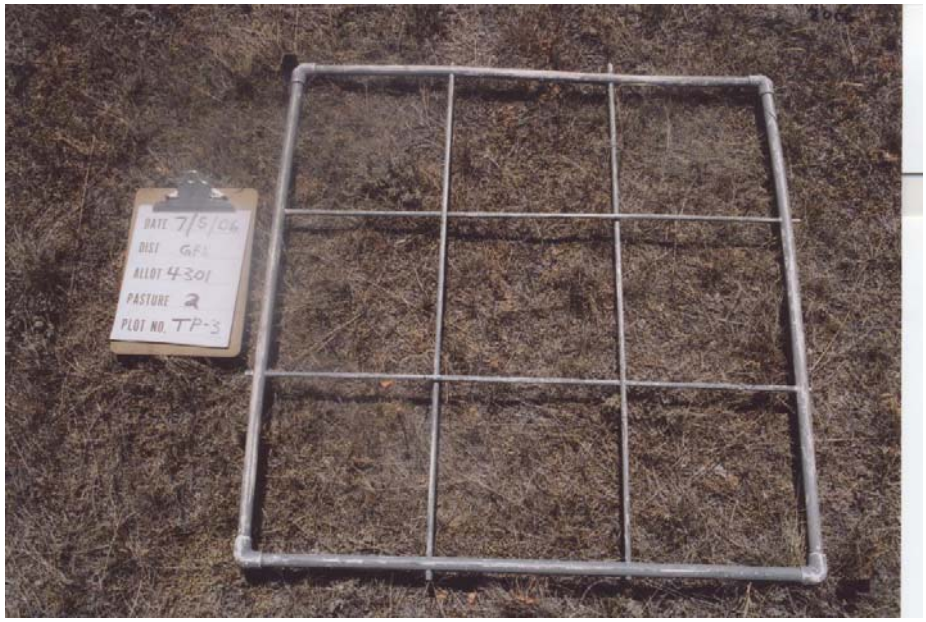
Collectively, the data and pictures indicated a general upward or static trend from the early 1990s to 2004. Climatic conditions seemed to have the most impact on species composition with grass plants increasing and woody species declining slightly. Most of the 3x3 trend studies are on sites that have at least some clubmoss. The clubmoss dominated sites have remained essentially static with plant vigor increasing or decreasing depending on favorable or unfavorable climatic conditions.

Land health data:

A land health assessment sheet was completed on selected trend site that was photographed and read. The assessment consisted of an ecological status survey of the entire ecological site. This assessment also included several erosion check lists and general trend indicators. These assessments showed land health conditions to be adequate on all sites, except those where crested wheatgrass was dominating the site.

This set of four trend photos shows the typical silty ecological site in the watershed. The photos show a diversity of vegetative species (grass & forb).

The following 3x3 trend photos in the Upper Buggy Allotment #47301show the typical silty upland site in the watershed. Notice the lack of change in grass cover since the 1991 on these club moss dominated sites.



Allotment 4301 2006 Plot 3

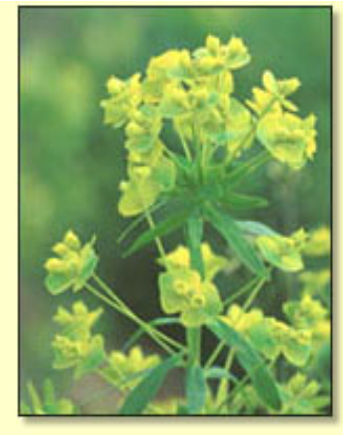
Allotment 4301 2006 Plot 3

Allotment 4301 2006 Plot 3 (long view)

Allotment 4301 1991 Plot 3 (long view)

Weeds:

Since 1984, BLM has been involved in cooperative control efforts with the Valley County Weed District and the Cooperative State Grazing Districts. With this agreement, the county provides the expertise, equipment and labor to control noxious weeds on public lands located in Valley County and the BLM reimburses the county for the expenses incurred. The four Cooperative State Grazing Districts in Valley County have been cooperating parties throughout the history of the project. Control on private and state lands has been funded by the Grazing Districts and grants.



Leafy Spurge

Leafy spurge and knapweed infestations continue to be a threat to the public land in the Porcupine-Buggy Complex watershed. The goal has been to control and reduce the population of established infestations and aggressively treat any new, small invasions.

In 1998, the BLM aggressive started to treat the large infestation of leafy spurge on Lime Creek This area was aerial treated in the spring, followed by ground treatment in the fall. This management tactic along with biological control has been very successful. In 2002, the infestations became small and plants became scattered on Lime Creek, therefore we reduced our efforts to ground treatment only. In 2006, we treated less than 10 acres (mostly on state and private lands) by ground compared to treating 250 acres by air and ground in 1998. We are close to eradicating spurge from this area using integrated pest management.

The potential for leafy spurge infestation will always occur in the Buggy Creek and Canyon Creek drainages. As long as BLM has the funds and capability for aerial application we can also inventory by air. We have inventoried these drainages by air and we do find new leafy spurge plants and/or patches which are then treated and monitored. Without these management efforts leafy spurge would rapidly expand in these drainages.

Russian Knapweed

Knapweed is an extremely aggressive plant and there exists a high potential for this weed to spread onto nearby federal lands. Knapweed infestations are concentrated in small amounts, on private land in and around St. Marie and the Cherry Creek area. The majority of the knapweed is Russian knapweed. The county is using herbicide and biological control agents, including a seed head weevils and root borers, to control knapweed. BLM has helped fund this project since 2000, as we see this project as being very beneficial to protect nearby federal lands from future infestations of knapweed.

The cooperative agreement with Valley County has allowed effective and efficient use of spray equipment, chemical and funds. The BLM weed budget started to decline in 2004, and we do not anticipate increases in the near future. However, the county has been successfully acquiring grant money which will allow continued aerial and ground treatment programs. Our plan for the next 5 years is to continue to implement our weed management plan, dependent upon funding capability.

Riparian

Table 2 describes the original condition of the riparian zones that did not meet the riparian standards as described in the Porcupine-Buggy Complex Watershed Report. The scores determining Proper Functioning Condition (PFC) were generated using the Montana Riparian\Wetland Association method.

Table 2. Riparian Objectives, Riparian Standard Status, Recommended Actions

1. Allotment	2. Stream and Site	3. Site Specific Objectives (CT = Community type HT = Habitat type, Hanson et. al. 1995)	4 Miles	5. Function-health / trend	6. Does not meet stand-ard due live-stock	7. **Recommended actions**
4059	West Fork Porcupine Creek	Rose CT	1.5	FR / S	yes	Riparian Fence/AMP revision
4092	Unger Coulee	Maintain healthy Western wheatgrass HT	5.3	FR / S	yes	Continue grazing system, monitor closely
4303	Buggy Creek	Snowberry (CT) Western wheatgrass HT	2.4	FR / S	no	None, due to gravel substrate
4303	West Fork Canyon Creek	Rose /snowberry (CT) Western wheatgrass (HT)	4.8	FR / S	yes	Riparian pasture,
4301	Buggy	Rose (CT)	2.5	PFC		None

Riparian Current Status

Riparian condition is determined by using the Montana BLM/MRA health and function evaluation form. The form is divided into three main categories vegetation, geology and soils, and hydrology and the streambank. Using the form results in a calculated numerical rating which is used to determine the overall health of the riparian area; proper functioning condition (>=80%); functioning at risk (>=60-<80%); and non-functioning (<60%). The evaluation uses vegetative characteristics as an integrator of factors operating on the landscape. In addition, an analysis of a site's health and its susceptibility to degradation must consider physical factors (soils and hydrology) for both ecological and management reasons. Because many of the factors that influence the condition of the streams and riparian area are due to natural causes (such as sediment deposition from a high water event) and not due to management or livestock grazing, the ratings in the evaluation form have been weighted to take such situations into consideration.

Table 3 shows the updated riparian scores, by year, for the streams that were not meeting standards:

Table 3

Stream	**Allot-ment #**	**Study #**	**Score/year**	**Score/ year**	**Score/ year**	**Score/ year**	**Score/ year**	**Score/ year**
West Fork Porcupine Creek	4059	R-423	98/2006	98/2004	96/2002	72/1998		
Unger Coulee	4092	R-313	photo/2006	76/2004	75/2001	80/1999	77/1995	
Buggy Creek	4303	R-582	81/2006	88/2005	80/2004	77/2001		
West Fork Canyon Creek	4303	R-315	Photo/2006	Photo/ 2003	93/2002	81/2001	Photo/ 1999	81/1995
Buggy Creek	4301	R-450	69/2006	88/1988				

The following pages contain initial photos of the some of the Functioning at Risk sites. Next to the original photos are recent photos of each site as it began meeting standards.

Allotment 4059 R-423 1998

Allotment 4059 R-423 2006

4059 R-423 1998

4059 R-423 2006

Increased precipitation has been a factor in the improvement of this riparian area; however the greatest influence has been a change in livestock management due to the implementation of a riparian pasture grazing system..

Allotment 4303 R-315 Canyon Creek 2001

Allotment 4303 R-305 Canyon Creek 2006

These improvements are attributed to changes in livestock management after a riparian pasture grazing system was implemented resulting in less grazing use on Canyon Creek. The stream bank cover vegetation has increased and livestock hoof action on the bank has decreased. Notice the channel development in the stream below.

Allotment 4303 R-315 1995

Allotment 4303 R-315 2006

Lime Creek Berms Allotment #4078

Lime Creek is located in the Buggy Creek Watershed and is a tributary to the Milk River. Several smaller channels have developed on the floodplain which parallel Lime Creek and cross meander bends. As a result, runoff from the uplands is not reaching the main channel. Several small berms were constructed at the head of the small channels in order to direct the overland flow back into the main channel of Lime Creek. Directing the flow away from the smaller channels and back into Lime Creek will increase flow quantities and duration. In turn, this will help establish the riparian vegetation necessary to maintain channel function. Run off events have not been significant enough to test the berm project. Photo points have been established to monitor how the berms are working and the effectiveness on the stream channel and vegetation.

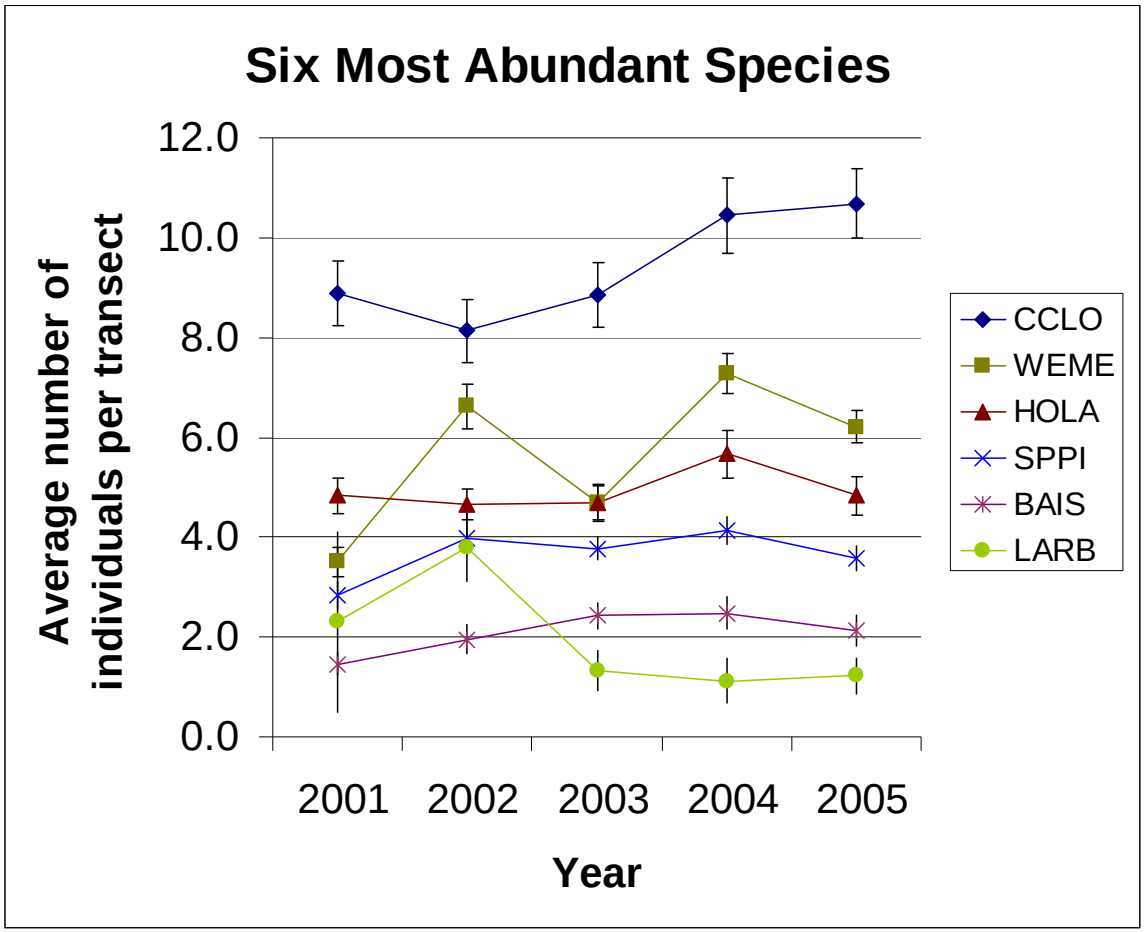
Wildlife

Key Questions from the Porcupine-Buggy Complex Watershed Report (2002)

1). *Grassland bird management*; How do we find a balance to meet habitat requirements for species (especially those listed as sensitive) that need a variety of habitats from very short vegetation to dense, tall cover?

The Montana Natural Heritage Program was contracted through the Challenge Cost Share Program to conduct bird surveys on grasslands throughout north Valley County (Graph 1 and Table 4). This work began in 2001, and has been conducted annually since then. A number of the sample points are located in the Porcupine/Buggy Watershed. Initial results from the surveys suggest that the status of grassland birds within the watershed is currently quite good. This watershed has many allotments; the larger ones have had grazing management plans developed for them, while the smaller ones are in custodial management with much variably in the grazing intensity. A variety of habitat conditions result from differing grazing intensity and timing across the landscape. As a result, the diversity and numbers of grassland bird species requiring a variety of grassland habitat conditions is high throughout the watershed as well as the surrounding landscape. The only concern may be the status of those species that require shorter stature grassland habitats. We are continuing to monitor these populations.

Graph 1. Average Number of Individuals Per Transect for the Six Most Abundant Species: North Valley County 2001-2005.



CCLO – Chestnut-collared Longspur BAIS – Baird's Sparrow HOLA – Horned Lark
LARB – Lark Bunting SPPI – Sprague's Pipit WEME – Western Meadowlark

Table 4. Relative Abundance (number and percent of points) of Detection for 9 Grassland Bird Species: North Valley County 2001-2005
(n = number of points sampled/year were the same for the first two years, and varied thereafter).

Species Common Name	2001 n=207 (%)	2002 n=207 (%)	2003 n=189 (%)	2004 n=195 (%)	2005 n=195 (%)	TOTAL n=996	Overall %	X(SD)
Western Meadowlark	155 (74.9)	194 (93.7)	165 (87.3)	186 (95.4)	190 (96.0)	890	89.4%	178.0/17.04
Chestnut-collared Longspur	170 (82.1)	168 (81.2)	162 (85.7)	167(85.6)	172 (86.9)	839	84.2%	167.8/3.77
Horned Lark	162 (78.3)	168 (81.2)	146 (77.2)	159 (81.5)	152 (76.8)	787	79.0%	157.4/8.59
Sprague's Pipit	126 (60.9)	157 (75.8)	153 (81.0)	160 (82.1)	158 (79.8)	754	75.7%	150.8/14.09
Baird's Sparrow	67 (32.4)	79 (38.2)	102 (54.0)	93 (47.7)	85 (42.9)	426	42.8%	85.2/13.35
Vesper Sparrow	46 (22.2)	60 (29.0)	56 (29.6)	53 (27.2)	37 (18.7)	252	25.3%	50.4/9.07
Lark Bunting	18 (8.7)	83 (40.1)	34 (18.0)	17 (8.7)	37 (18.7)	189	19.0%	37.8/26.85
McCown's Longspur	29 (14.0)	34 (16.4)	35 (18.5)	34 (17.4)	50 (25.3)	182	18.3%	36.4/7.96
Long-billed Curlew	34 (16.4)	46 (22.2)	32 (16.9)	27 (13.8)	40 (20.2)	179	18.0%	35.8/7.36
Marbled Godwit	22 (10.6)	40 (19.3)	25 (13.2)	40 (20.5)	50 (25.3)	177	17.8%	35.4/11.65

Species underlined are state Species of Concern. Marbled Godwit is a BLM Sensitive Species.

. McCown's Longspur. BLM Sensitive Species.

Figure x. Sprague's Pipit. BLM Sensitive Species.

Figure x. Chestnut-collared Longspur. BLM Sensitive Species.

2). *Waterfowl Production*; How can waterfowl habitat be developed in cooperation with downstream water users? What management techniques and land treatments should be employed to enhance or maintain current habitat?

Waterfowl habitat in this watershed is limited to currently constructed reservoirs. The BLM will consider enhancements for waterfowl at any impoundment scheduled for improvement and will continue to maintain the current waterfowl production reservoirs and monitor the use of these areas annually. The use of these reservoirs appears to be quite high and grassland conditions provide excellent nesting cover for most waterfowl species in most years.

The Wards Dam is a joint BLM and Ducks Unlimited project currently managed for waterfowl. The reservoir and 120 acres of surrounding uplands are fenced from the surrounding allotment. Management of the reservoir and surrounding uplands was changed in 2005, to allow seasonal grazing for a short period only once every five years. This change was implemented in response to the lack of emergent vegetation along the reservoir shoreline after cattle grazing. We hope this will allow increased vegetative cover

along the margins of the reservoir to provide habitat for a wide variety of species that require emergent cover. We believe that the proposed disturbance schedule to the emergent vegetation provided by cattle grazing in this area will keep emergent vegetation from becoming too dense.

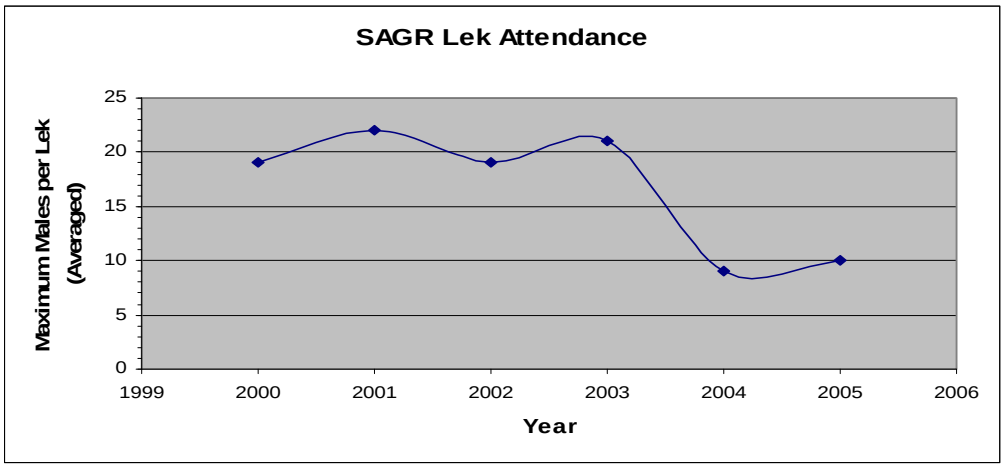
3). *Prairie Dogs*:
No Black-tailed Prairie Dog towns are located within this watershed boundary. One potential prairie dog town has been noted and will be monitored in subsequent years.

4) *Greater Sage-grouse*
Populations:

Greater Sage-grouse *(Centrocercus urophasianus)* are a BLM species of concern and are associated with patchy silver sage stands irregularly distributed across the landscape within this watershed and throughout Greater Sage-grouse range north of the Milk River. Greater Sage-grouse in this portion of the county are thought to be declining and are of management concern. We initiated a research project with the University of Montana in 2006, to examine seasonal habitat use, movement, and reproductive parameters of this population. Findings from this research may be used to adjust management in the future. One aspect of the research is to see how these birds utilize this required resource in this landscape context.

There are five known Greater Sage-grouse leks in the Buggy Creek Watershed, three of which are active. Leks 20-060 (inactive), 20-065, 20-097, and 20-100 are on BLM land. In the last two years, the average maximum number of males to attend a lek has dropped markedly, from 19-22 males to 9-10 (see Figure 1). The reason for this decline could be due in part to harsh winter conditions in 2003-04.

Figure 1. Average male Greater Sage-grouse lek attendance.



Habitat:

Greater Sage-grouse habitat in northern Valley County, specifically the Buggy Creek Watershed, is characterized by narrow bands of silver sagebrush *(Artemisia cana* spp. *cana)* along creek beds (see Figure 2). Greater Sage-grouse are dependant on sagebrush almost exclusively for food and cover during the breeding and winter seasons (Connelly et al. 2000). Having sagebrush, an essential component of their breeding and winter habitat, limited to such a small area could impact the population performance of Greater Sage-grouse.

In an effort to characterize the Greater Sage-grouse breeding habitat in the watershed, the BLM completed a series of habitat assessments in 2005 and 2006. The study was set up assess the breeding habitat randomly within 2-miles (3-km) of each active Greater Sage-grouse lek.
Overall, results from this study show the habitat to be Unsuitable by State Guidelines (SGWG 2005) for Greater Sage-grouse nesting and brood-rearing (see Table 5 and Figure 3). However, these guidelines were adapted for Big Sage habitats and are probably not applicable in Silver Sage habitats.

Table 6 depicts the results of the habitat assessments. The average sagebrush canopy cover was 5.693% (± 4.058), almost 10% lower than the standard minimum for suitable nesting cover. The average sagebrush height was 20.666 cm (± 5.271), at the low range of marginal habitat. Nesting cover was boosted with the high quality of grass cover (75.500% ± 15.622) and grass height (35.501 cm ± 8.357). Forage (excluding sagebrush) availability was also suitable (forb canopy cover: 15.317 ± 10.043). When *Artemisia frigida*, a highly palatable half-shrub to Greater Sage-grouse chicks, was included as a forage type in 2006, it raised results from 16.986% to 19.179%.

The linear nature of the Silver Sage habitats in this watershed limits the applicability of the use of the 2 km buffer around the leks. The grouse may be moving greater than 2 km from the lek to utilize these linear habitat features and our methods do not account for sampling these linear habitat features effectively. Sagebrush stands with higher canopy cover could potentially exist in the area or even outside the lek buffer. Greater Sage-grouse could also be using shrubs other than sagebrush for nesting cover. Our results suggest that habitat conditions for Greater Sage-grouse in the watershed are limiting for these birds; however, as noted above, there are limitations in interpretation of these results due to sampling methodology and the nature of Greater Sage-grouse habitat in this watershed. Results from ongoing research with radio collared grouse as noted above will help us better interpret habitat assessment results and also provide additional information concerning habitat use and potential management actions for Greater Sage-grouse inhabiting this watershed.

Figure 2. A map of dominant vegetation in Buggy Creek Watershed.

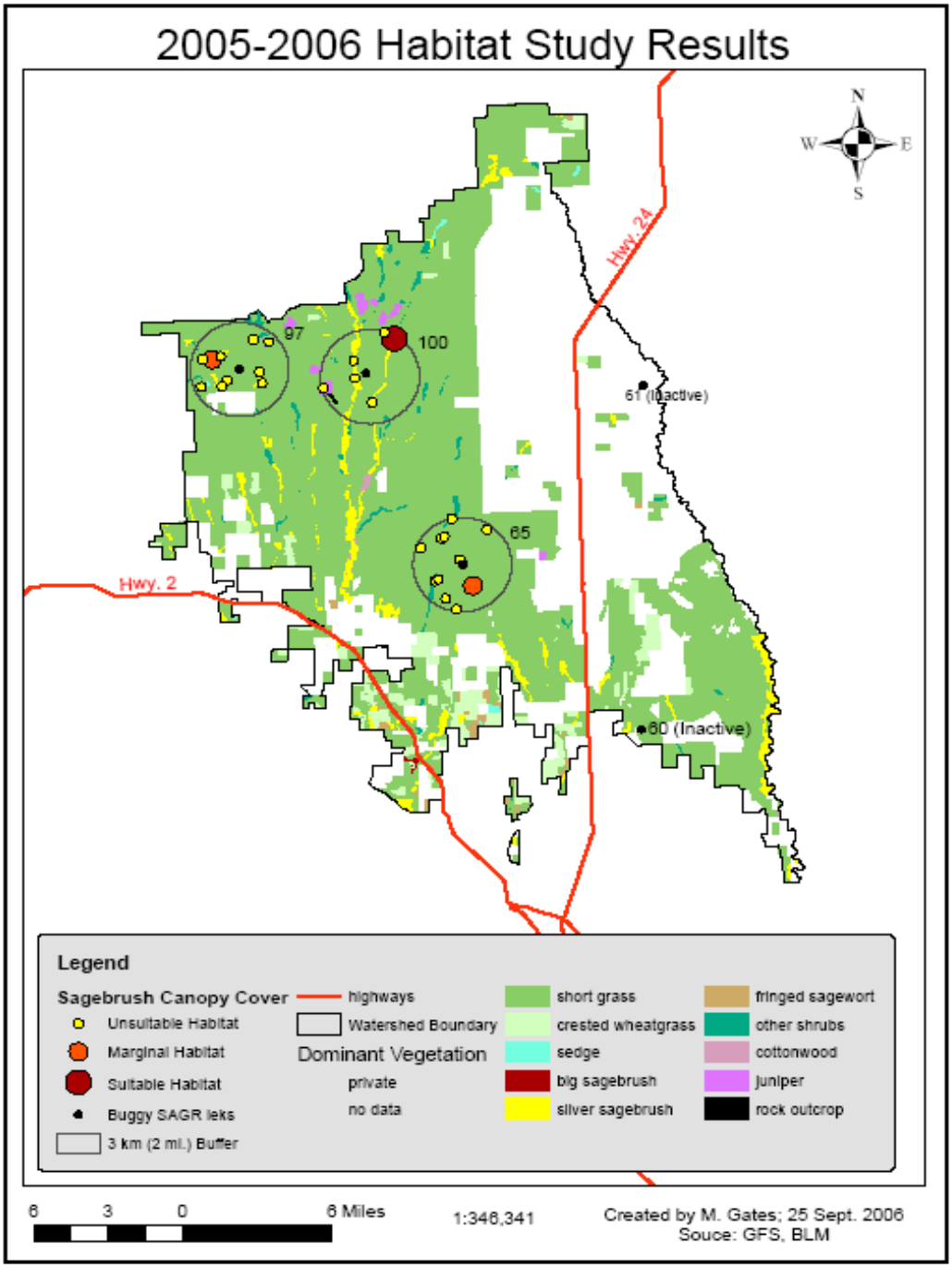


Table 5. 2005-06 Results for Buggy Creek Watershed. Values are shown as means (± standard deviation).

Habitat Indicator	SB Sites	Suitability	GR Sites	OV Sites
Silver Sagebrush Canopy Cover (%)	5.693 (±4.058)	U	0.827 (±1.168)	2.803 (±6.483)
Silver Sagebrush Height (cm)	20.666 (±5.271)	Lo-M	11.047 (±10.774)	10.974 (±10.974)
Grass Canopy Cover (%)	75.500 (±15.622)	S	68.575 (±20.145)	16.622 (±16.622)
Grass Height (cm)	35.501 (±8.357)	S	22.887 (±6.995)	6.144 (±6.144)
Preferred Forb Canopy Cover (%)	15.317 (±10.043)	S	10.285 (±6.224)	13.271 (±13.271)
Preferred Forb Height (cm)	14.681 (±6.941)	M	8.507 (±2.736)	6.215 (±6.215)
Combined OV Canopy Cover (%)	32.744 (±14.407)	n/a	7.005 (±5.274)	18.862 (±18.862)
% Club Moss	17.311 (±32.133)	n/a	48.725 (±34.343)	28.250 (±28.250)
% Litter	75.722 (±19.135)	n/a	75.900 (±18.731)	24.447 (±24.447)
% Bare Ground	21.467 (±21.760)	n/a	9.350 (±10.651)	27.194 (±27.366)
Overall Site Evaluation		**Unsuitable**	n/a	n/a

S = Suitable Habitat, M = Marginal Habitat, U = Unsuitable Habitat

Figure 3. A graph representing the quality of silver sagebrush canopy cover.

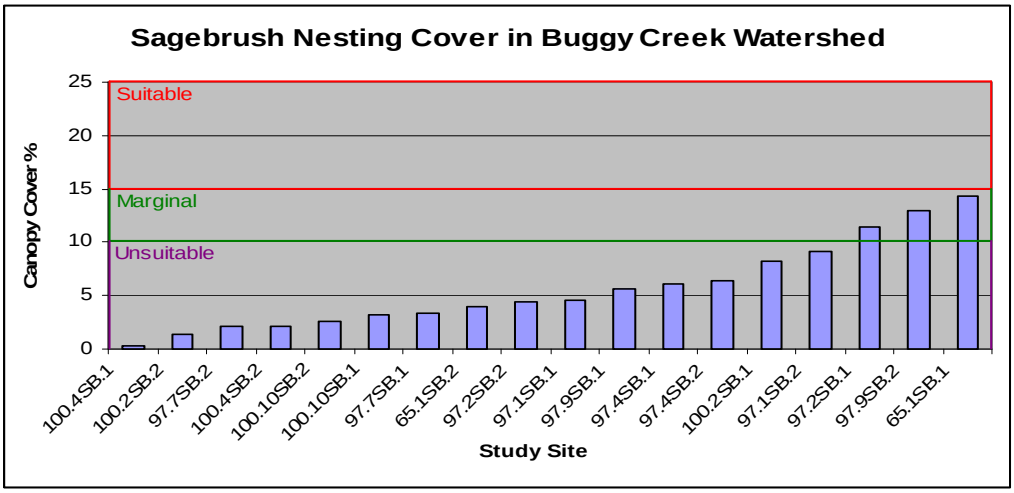


Table 6. 2006 Results for Buggy Creek Watershed. Values are shown as means (± standard deviation).

Habitat Indicator	SB Sites	Suitability	GR Sites	OV Sites
Silver Sagebrush Canopy Cover (%)	5.097 (±4.128)	U	0.774 (±1.147)	4.264 (±7.976)
Silver Sagebrush Height (cm)	21.784 (±5.438)	M	9.816 (±10.801)	12.470 (±11.213)
Grass Canopy Cover (%)	73.607 (±17.498)	S	82.100 (±3.480)	70.900 (±18.982)
Grass Height (cm)	35.493 (±8.890)	S	22.868 (±4.924)	26.748 (±5.531)
Preferred Forb Canopy Cover (%)	16.986 (±10.134)	S	8.630 (±4.835)	16.160 (±16.953)
Preferred Forb Height (cm)	16.384 (±6.775)	M	8.900 (±2.247)	12.598 (±7.709)
A. frigida Canopy Cover (%)	2.193 (±1.803)	n/a	2.270 (±0.696)	1.180 (±1.262)
Forbs + *A. frigida* Canopy Cover (%)	19.179 (±11.937)	S	10.900 (±5.531)	17.340 (±18.215)
Other Vegetation Canopy Cover (%)	21.700 (±17.672)	n/a	1.550 (±0.749)	8.890 (±6.927)
Combined OV Canopy Cover (%)	36.686 (±13.442)	n/a	7.650 (±5.523)	17.930 (±15.873)
% Club Moss	10.464 (±25.738)	n/a	61.650 (±35.958)	20.150 (±34.935)
% Litter	75.464 (±22.090)	n/a	88.800 (±1.605)	74.700 (±17.940)
% Bare Ground	23.507 (±24.441)	n/a	7.940 (±6.418)	35.170 (±32.728)
Overall Site Evaluation		**Unsuitable**	n/a	n/a

S = Suitable Habitat, M = Marginal Habitat, U = Unsuitable Habitat

A Greater Sage-grouse displays on a lek

5) Is management of existing fisheries adequate?

Current fishing reservoirs located in the watershed are Big Reservoir, Atlas Reservoir and Langen Reservoir. Big Reservoir contains perch and crappie, Atlas contains large-mouth bass, and Langen contains large-mouth bass. Future management of these reservoirs will be coordinated with Montana Fish, Wildlife and Parks and the BLM recreation program in Glasgow.

Cultural Resources

A large prehistoric habitation site was located and recorded in the watershed in 2001. This site is located next to a natural spring which could have provided year around water. An existing road and trailing by livestock to the spring had caused considerable erosion on the site. The Porcupine-Buggy Creek Watershed Report recommended the following steps be taken to manage this site for future interpretation:

- Use a global positioning (GPS) unit to map the site
- Construct a larger exclosure fence around the site, including the spring
- Reroute the trail around the site
- Some site excavating should occur in the future.

A fence was constructed around the site and the road rerouted in 2003. A reservoir was constructed offsite to replace the livestock water provided by the spring. The site was inventoried with the GPS and documented. Some inventory and monitoring is done on this site every year showing that erosion has been abated and the site stabilized. The

impending excavating has not yet occurred but is still planned for the future along with monitoring the site every year.

Recreation

1. BLM continues to provide for dispersed recreational activities in the watershed. Eight cattle guards were installed on the Buggy Creek loop road to improve vehicle access by eliminating the need to open and close gates.

2. Big Reservoir, Atlas Reservoir and Langen Reservoir continue to provide fishing opportunities for the public.

3. Standards and guideline implementation is ongoing which will continue to maintain the Porcupine-Buggy Complex watershed area as a natural grassland.

4. Off Highway Vehicle (OHV) travel on BLM public lands is regulated by the June 2003 Record of Decision (ROD) Off Highway Vehicle Environmental Impact Statement and Proposed Plan Amendment for Montana, North Dakota and South Dakota. This Record of Decision designated BLM lands as a limited area for OHV use. Limited area means an area restricted at certain times, in certain areas, and/or to certain vehicular use. Furthermore, the approved preferred alternative in the ROD states that BLM will restrict motorized wheeled cross-country travel yearlong, which effectively limits motorized wheeled travel to existing roads and trails until site specific travel management plans are developed for high, medium, and low priority geographical areas.

The Porcupine-Buggy Watershed area is within a low priority travel management planning area and there are no specific time requirements for initiating site specific planning for low priority areas. **Therefore, until that travel management planning occurs, all motorized wheeled travel on BLM public lands (excluding WSAs) will be restricted to existing roads and trails within the Malta Field Office boundary**.

This decision applies to the general public's use on BLM land, however it allows BLM employees, other government entities, and lessees and permittees motorized wheeled cross-country travel when performing administrative functions in managing the BLM public lands. Examples of grazing permittees administrative functions include, but are not limited to checking vegetative conditions, building or maintaining fences, delivering salt and supplements, moving livestock, checking wells or pipelines as part of the implementation of a grazing permit or lease.

Motorized wheeled cross-country travel to a campsite is permissible within 300 feet of roads and trails. Site selection must be completed by non-motorized means and accessed by the most direct route causing the least damage.

Motorized wheeled cross-country travel for big game retrieval is not allowed.

Mechanical transport, including all motorized vehicles as well as trail and mountain bikes, is only allowed on existing ways (roads or routes). Mechanical and motorized vehicles may only travel to a campsite within 30 feet of the center line of the existing ways.

Any new recreation initiatives will be addressed in the current land use planning process; the Malta RMP.

Range Improvements

Most of the water developments and fences that were identified in the Porcupine-Buggy Complex Watershed Report have been completed. The last few livestock waters are scheduled for construction in 2007. Some boundary fence reconstruction has been completed in the watershed. Some additional fence and waters will be needed in allotments 4301 and 14116 when the AMP modifications are completed. Most new projects will be upgrades and replacement of existing range improvements as the basic range improvements have been mostly completed in this watershed.

Wind Farm

A wind farm has been proposed north of this watershed. An associated 115 kv power line would pass through this watershed. This power line is approximately 30 miles long and would dissect the watershed in half from north to south. A land use plan amendment and associated NEPA documentation will be completed if the project proceeds.

2007 -2012 Recommendations

The following actions will be initiated (pending staffing and funding) or will continue on these allotments.

Wards Dam # 4059

- Continue the effort to keep livestock out of the exclosure to enhance waterfowl habitat

Lower Unger Coulee #4069

- Encourage water development on private land

Upper Lime Creek #4078

- Monitor riparian restoration and saline seep projects
- Complete utilization level monitoring on the riparian pasture since herbicide treatments have increased forage palatability where spaying has occurred
- Continue monitoring and treating spurge with chemical control

Alkali Coulee #4089

- Develop, cooperatively with the operator, a dependable water development (spring or well) on public or private land

Upper Unger Coulee #4092

- Gather production information on bench tops
- Encourage the permitee to complete the chisel plow project if he wants to run full livestock numbers in the SW and SE pastures
- Change monitoring timing interval from every year to every 5 years on the riparian zone

Upper Buggy #4301

- Create a riparian pasture in pasture 1
- Create a riparian pasture in pasture 6
- Update the AMP to reflect grazing system changes and monitoring requirements
- Continue monitoring and treating spurge in this allotment with chemical control

Spring Coulee #4308

- Continue to include this allotment in the Buggy Creek (4303) grazing schedule
- Schedule early spring livestock grazing use to benefit the riparian on Spring Creek
- Monitor the riparian zone on Spring Coulee for 2 years

Westfork #4309

- Monitor the riparian zone, especially silver sage

Dry coulee #14102 & Antelope spring #14101 (Nelson, Boreson)

- Drop the recommendation to develop AMP as it is not feasible at this time

Cherry Creek 14109

- Archeological clearances are completed and chisel plowing should begin when moisture conditions are favorable in the spring

Upper Spring Coulee #14112

- Continue to use Allotment 14113 in combination with this allotment
- Encourage the operator to try some mechanical treatment methods on private land (increases in forage production on this allotment will only available through a chisel plow plan that would include significant amounts of private land)

Hawk Coulee 14116

- Review the AMP with operator for possible revision
- Construct two new livestock water sources

Conclusion

The monitoring data indicates the Porcupine-Buggy Watershed is making progress toward meeting all the Rangeland standards. The cooperation of the livestock operators in modifying grazing systems and resting certain areas has helped improve the condition of these public lands.

Climatic conditions have generally been favorable the last 5 years (with the exception of 2006) which has also helped improve the vegetative conditions in the watershed.

The BLM will continue to fight the war on weeds with given resources, funds and staff. We are currently using all the management tools to prevent the spread of leafy spurge in the Porcupine-Buggy Watershed

The BLM, in cooperation with the permittees, will continue monitoring the riparian and uplands to ensure continued upward trends on those areas that have not yet met the standards.

The BLM is committed to more intensive monitoring and inventory of Greater Sage-grouse habitat in order to maintain or improve the existing habitat.

We have also committed resources to investigate habitat use of birds in this area. A number of grassland bird sensitive species continue to be monitored and investigations have begun to look at how different species respond to grazing management.

A signing and map program for OHV will be implemented after the updated Malta RMP is completed and if funding is available.

The continuation of the watershed process will take cooperation and partnership with the permittees, interest groups and other federal and state agencies. Consultation, Cooperation and Coordination all for the sake of Conservation is a tradition and work practice that continues to result in successes in our public land management.